

## CLAIMS

1. A method for determining a characteristic of a first object in a package of multiple objects, the method comprising the steps of:

creating a lineogram from a CT scan of the package;  
determining a first position in the lineogram wherein the first object is substantially separated from other objects; and  
determining a characteristic of the first object from data at the position.

2. The method of claim 1, further comprising the steps of:

determining a plurality of positions in the lineogram wherein the first object is substantially separated from other objects; and  
determining a characteristic of the first object from data at the plurality of positions.

3. The method of claim 1, wherein the step of determining a first position includes the steps of:

determining a mass for each position in the lineogram;  
determining a clutter index for positions in the lineogram; and  
selecting the first position based upon the clutter index.

4. The method of claim 2, wherein the step of selecting the first position includes the steps of:

comparing the clutter index for each position with a predetermined threshold value; and  
selecting the first position such that the clutter index is less than the predetermined threshold value.

5. The method of claim 1, wherein the characteristic of the object is one of a mass, size, metallic content, location, Z-eff or atomic number.
6. The method of claim 1 further comprising the steps of:
  - determining a center of gravity of the first object;
  - determining a sine wave through the center of gravity of the first object
  - modifying data in the lineogram such that data relating to the first object based upon the sine wave;
  - reconstructing voxels relating to an area of the package about the first object using the modified data.
7. A method for scanning a bag to locate potential threats comprising the steps of:
  - performing a CT scan of the bag;
  - creating a lineogram from the CT scan of the bag;
  - selecting positions in the lineogram wherein objects are substantially separated from other objects; and
  - determining a characteristic of objects from data at the selected positions;
  - determining whether a threat exists based upon the characteristics of the objects.
8. The method of claim 7, wherein the step of selecting positions includes the steps of:
  - determining a mass for each position in the lineogram;
  - determining a clutter index for positions in the lineogram; and
  - selecting positions in the lineogram wherein the clutter index is less than a predetermined threshold.
9. The method of claim 7 further comprising the steps of:

determining a center of gravity of a first object having a characteristic of a threat;  
determining a sine wave through the center of gravity of the first object  
modifying data in the lineogram such that data relating to the first object based upon the sine wave;  
reconstructing voxels relating to an area of the package about the first object using the modified data; and

determining whether a threat exists based upon the reconstructed voxels.

10. The method of claim 7 wherein the step of determining whether a threat exists occurs during performance of the CT scan of the bag.

11. The method of claim 10, further comprising the step of adjusting the CT scan of the bag when a threat is determined.

12. The method of claim 11, wherein the step of adjusting the CT scan of the bag includes changing a speed of the bag passing through the CT scan.

13. The method of claim 11, wherein the step of adjusting the CT scan of the bag includes changing the resolution of the CT scan.

14. The method of claim 9 further comprising the step of presenting an image of the reconstructed voxels to an operator for review.

15. A system for locating threats in bags comprising:

a CT scanner having a rotating gantry;

a conveyor for advancing bags through the CT scanner during rotation of the gantry;

means for creating a lineogram of data from the CT scanner;

means for determining at least one characteristic of objects in a bag based upon the lineogram data; and

means for determining threats based upon the at least one characteristic.

16. The system of claim 15, further comprising

a drive mechanism for driving the conveyor a predetermined speed; and

means for changing the predetermined speed of the drive mechanism upon determination of a threat.

17. The system of claim 15 further comprising:

means for changing the resolution of data from the CT scanner upon determination of a threat.